Dr. Eva C. Herbst

Postdoctoral Fellow in Shoulder Biomechanics

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Website - **Github** - **GoogleScholar** - **Figshare** - **Publons** - **Orcid**

Education

Oct 2016 - Apr 2020	PhD in Biomechanics and Palaeontology *Advisor: John Hutchinson, Structure & Motion Lab, Royal Veterinary College, London*
Aug 2012 - May 2016	B.A. in Integrative Biology *U.C. Berkeley*
Oct 2013 - Jun 2014	Degree of Higher Education in Biomedical Sciences *Durham University*, Year of Study Abroad, Certificate of Higher Education

Employment & Research Experience

Mar 2023 - present	Postdoctoral Fellow: Computational Shoulder Biomechanics *ETH & Schulthess Clinic, Zurich*
Dec 2019 - Nov 2022	Postdoctoral Researcher: Skull Biomechanics of Triassic Reptiles *Palaeontological Institute & Museum, University of Zurich*
Oct 2019 - Dec 2019	OATech+ Network Early Career Researcher Placement: Knee Osteoarthritis *Skeletal Biology Group, Royal Veterinary College London*
May 2013 - Jul 2016	Undergraduate Research Assistant: Anatomy and Biomechanics Projects *U.C. Berkeley & University of Missouri*

Technical Skills

- **biomechanical model development**: specializing in dynamically coupled finite element and multibody dynamic analyses
- **in vivo kinematic analysis:** biplanar fluoroscopy
- **ex vivo kinematic analysis:** cadaveric analysis with optical motion capture
- **programs and languages**: Artisynth, Blender, 3D Slicer, Avizo, Mimics, Abaqus, Maya, Python, Java, R
- **additional skills**: dissections, image segmentation, photogrammetry, 3D modeling

Honors & Awards

2021	**D. Dwight Davis Award, Society of Integrative and Comparative Morphology** Best student oral presentation in the Division of Vertebrate Morphology
2020	**Swiss Commission of Palaeontology Prize** Best presentation in palaeontology given at the Swiss Geoscience Meeting
2016	**Franklin M. Henry Award, Integrative Biology, UC Berkeley** Outstanding achievement in human performance and health research
2016	**Distinction in General Scholarship, UC Berkeley**

Awarded to graduates achieving high grade point average

2013, 2015 **Dean's Honors, UC Berkeley**
Awarded to graduates achieving high grade point average

Grants & Funding

2024 **ETH Career Seed Award** 30,000 CHF
Grant for research project "Age-based Bone Density of the Glenoid: Method Development and Quantification of Patient Variation"

2024 **Gesellschaft für Arthroskopie und Gelenkchirugie** 10,000 EUR
Grant for establishing a clinical imaging database of shoulder instability patients

2024 **Hamlyn Symposium for Medical Robotics Workshop Funding** 2,500 GBP
Organisation of Workshop: Open-Source Software for Surgical Technologies, London, June 2024

2023 **Digital Switzerland Boost Programme** 420 CHF
Grant for attending Advanced 3D Slicer Programming Course

2021 **ImagingBioPro Network Online Educational Material Grant** 1,000 GBP
Development of educational materials and code: mesh manipulation and trabecular segmentation

2020 **University of Zurich GRC Grant** 10,000 CHF
Organization of finite element analysis conference and workshop with over 200 participants, development of website and Github organisation for sharing finite element modeling methods

2019 **OATech+ Network Biomechanics and Mechanobiology Pump Priming Fund** 10,000 GBP
Research project 3D trabecular architecture as a biomarker to identify and monitor knee osteoarthritis

2019 **OATech+ Network Early Career Researcher Placement** 3,000 GBP
Placement with Prof Andrew Pitsillides at RVC to work on osteoarthritis project (see above)

2018 2019 **Royal Veterinary College Foreign Travel Fund** 600 GBP
300 GPB each to present research at ICVM and SICB conferences

2016 **Research Experience for Undergraduates, National Science Foundation** 3,500 USD
Biomechanics research internship, University of Missouri

Conference Presentations, Invited Talks & Workshops, Teaching

Please see a full list of my presentations, invited talks, workshops, and teaching here.

Supervision

• **Liam Roth**, Master's Semester Project: Cartilage Morphology Effects in Patient Specific Biomechanical Finite Element Glenohumeral Joint Models, ETH Zurich (2024)
• **Jan Heres**, Master's Thesis: Reconstruction of a patient-specific model of the humerus bone. University of West Bohemia (acting as external supervisor) (2024)
• **Dennis Agbanyim**, Master's Thesis: Phantomless Bone Density Calculation: Developing Research Software for Patient-Specific Shoulder Modeling, ETH Zurich (2024)
• **Flavia Stettler**, Master's Semester Project: Humeral Translations, ETH Zurich (2024)
• **Dylan Bastiaans**, PhD Thesis: Digital Palaontology and Biomechanics, UZH (2019-2023)
• **Kehan Pan**, Master's Semester Project: Finite Element Analysis of Triassic Reptile Skulls, ETH Zurich (2022)

Open-Source Work

I have developed several open-source programs, which are available on my website.